WHAT IS CLAIMED IS:

1.   A data storage system comprising:

a storage media for storing data;

a controller configured to determine an amount of free space available on the storage media, and to select a method of generating additional error correction information for data stored on the storage media based upon the determined amount of free space on the storage media.

2.   The data storage system of claim 1 wherein the controller is further configured to generate the additional error correction information for data stored on the storage media according to the selected method.

3.   The data storage system of claim 1 wherein the controller further comprises:

a first controller component; and

a second controller component.

4.   The data storage system of claim 1 wherein the controller is configured to select one of a plurality of methods of error correction information based on whether the amount of free space on the storage media meets a predetermined threshold level.

5.   The data storage system of claim 4 wherein if the amount of free space is greater than or equal to a first threshold value of the capacity of the storage media, the controller is configured to store a mirror copy of the data on the free space of the storage media.

6. The data storage system of claim 5 wherein the controller is configured to store the mirror copy of the data as a compressed version of the data.

7. The data storage system of claim 4 wherein if the amount of free space is less than a first threshold value of the capacity of the storage media, the controller is configured to select a Reed/Solomon code for the additional error correction information.

8. The data storage system of claim 1 wherein the storage media is at least one disc divided into a plurality of sectors, and the controller stores the data on at least one of the plurality of sectors.

9. The data storage system of claim 8 wherein the controller is further configured to determine an unused amount of each of the plurality of sectors on the at least one disc, and to select one of the plurality of methods for error correction information based on the unused amount of each sector.

10. The data storage system of claim 9 wherein the controller is further configured to compress the data on the sector, and generate additional error correction information for the data in the sector using the additional space generated by the compression of the data.

11. The data storage system of claim 9 wherein the controller is configured to write the location of the error correction information for each the sectors to a redundancy table.

12.   The data storage system of claim 9 wherein the controller is configured to generate a compressed version of the data to be stored in another sector of the storage media, and generates a Reed/Solomon error correction code for the data in the unused portion of the sector.

13.   A method of storing data on a storage media comprising the steps of:
   1) receiving data at a storage device containing the storage media;
   2) adding error correction code to the received data
   3) generating additional error correction information based upon an amount of free space on the storage media;
   4) storing the data on the storage media; and
   5) storing the generated additional error correction information on the storage media.

14.   The method of claim 13 wherein generating error correction information further comprises the steps of:
   selecting one of a plurality of methods for generating error correction information based upon the amount of free space on the storage media; and
   generating the error correction information based on the selected method.

15.   The method of claim 14 wherein selecting one of a plurality of methods further comprises the steps of:
   a) calculating the amount of free space available on the storage media;
   b) comparing the calculated amount of free space against a plurality of threshold values, each of the plurality of thresholds corresponding to an amount of free space on the storage media and a method of error correction information;

c) identifying the threshold value that corresponds with the calculated amount of free space; and

d) executing the method of error correction information for the identified threshold value.

16. The method of claim 15 wherein if the amount of free space is greater than a first threshold value of media capacity, further performing the steps of:

e) creating a mirror copy of the received data;

f) storing the mirror copy of the received data on a different location of the storage media; and

g) adding error correction code to the mirror copy of the data.

17. The method of claim 15 wherein if the amount of free space is less than or equal to the first threshold value and greater than a second threshold value of media capacity, further performing the steps of:

e) creating a mirror copy of the received data;

f) compressing the mirror copy of the received data; and

g) storing the compressed copy of the received data on a different location of the storage media.

18. The method of claim 17 wherein prior to storing the compressed copy of the data; adding error correction code to the compressed copy of the data.

19. The method of claim 15 wherein if the amount of free space is less than or equal to a second threshold value of media capacity, further performing the steps of:

e) generating additional error correction code for the received data; and

f) storing the additional error correction code in a different location on the storage media.

20.　The method of claim 15 wherein if the amount of free space is less than or equal to a third threshold value of media capacity, further performing the steps of:

　　e) compressing a portion of the data on the media to increase the amount of free space on the storage media;

　　f) generating additional error correction code for the received data; and

　　g) storing the additional error correction code on the storage media.

21.　The method of claim 15 wherein if the amount of free space on the storage media is less than a fourth threshold, further performing the steps of:

　　e) identifying any mirrored copies of data on the storage media; and

　　f) compressing each identified mirrored copy of data.

22.　The method of claim 21 wherein if identifying any mirrored copies of data does not identify any copies, further executing the steps of:

　　(g) identifying any compressed mirrored copies of data on the storage media;

　　(h) deleting at least one of the identified compressed mirrored copies;

　　(i) checking if the free space on the media exceeds a fifth threshold value;

　　(j) if the free space does not exceed the fifth threshold value repeating steps g-i.

23.　The method of claim 22 wherein deleting at least one compressed copy deletes the compressed data associated with data that was least currently accessed.

24.   The method of claim 22 wherein prior to step (i) generating additional error correction code for the data associated with the deleted compressed mirrored copy.

25.   The method of claim 22 wherein if step (g) fails to identify any compressed mirrored copies, further performing the steps of:

(k) compressing a portion data stored on the media;

(l)generating additional Error Correction Code for the compressed data; and

(m)repeating steps g-h until the capacity of the media exceeds the fifth
       threshold.

26.   The method of claim 25 wherein step (k) compresses data that was least currently accessed.